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Contagious Abortion in Cattle.*

By A. Leslie Sheather, D.Sc.,
Assistant Director of Research, Royal Veterinary College, London.

Before proceeding to deal with the subject of contagious abortion, I wish to make it clear that, as your Secretary asked me to read a paper which, with the discussion, would not exceed about three-quarters of an hour, it is impossible for me to do more than give a general survey of the outstanding features of the disease.

At this date it will hardly be necessary to insist that, while there may be other causes of isolated cases and even of outbreaks of abortion in cattle, the condition is in the overwhelming majority of cases due to the bacillus isolated by Bang and Stribolt in 1896. I shall therefore confine myself to a consideration of this particular infection. The organism, although capable of infecting other species, acquires its importance from the fact that it is in bovines that it is responsible for serious loss.

It is a little unfortunate that the disease should have acquired the name it bears, for the reason that abortion is not an invariable symptom of infection. The condition is in reality, a specific infection of the uterus and fœtal membranes, and whether or not abortion takes place appears to depend upon the severity of that infection. There is, as a rule, no general disturbance of health, and therefore when abortion does not occur the practitioner has no grounds for suspicion that a cow is infected.

In connection with any disease, whether contagious or not, the attention of the practitioner is concentrated on three points. These are (1) diagnosis, (2) prevention, and (3) cure. Clearly, the first two of these are the most important. Equally clearly, no rational method of tackling any disease can be devised until information is available regarding the cause. I must, therefore, review briefly the bacteriology of the condition.

The bacillus of Bang is a small organism which locates itself in the chorion and produces an inflammatory condition leading to the production of a variable amount of exudate. If some of this exudate be obtained absolutely fresh, and preparations are made and suitably stained, the organism can, as a rule, be recognised by its small size, and by the fact that it tends to grow in the form of clumps, many of which appear to be enclosed in cells. This is the only means whereby even an approximately certain diagnosis can be made by microscopic examination. Exudate that is not absolutely fresh so teems with accidental organisms that it would be an extremely rash procedure to attempt to base any diagnosis upon microscopic examination.

The staining reactions of the organism may be dismissed very briefly. It is readily stained by basic aniline dyes, will resist decolorisation by weak acetic acid applied for a few seconds only, and is not stained by the method of Gram, or by any of its modifications.

Culturally, the organism shows some special features. It possesses a peculiar characteristic in that when first cultivated from the lesions it will not grow at ordinary atmospheric pressure. If a tube of culture medium which is solid at body temperature, but which may be liquefied at higher temperatures, is inoculated throughout the medium while it is liquid, and is incubated at body temperature after it has set, solid growth takes places only in the form of a disc composed of minute colonies a fraction of an inch below the surface of the medium. The organism, however, when sub-cultured artificially soon acquires the power of growing upon the surface of solid media, and of yielding a good growth.

The behaviour of the bacillus in the animal body presents some exceptional features, and some of these have an important bearing upon the questions of control and eradication.

Methods of Infection. For all practical purposes, it may be held that the bacillus gains access to the animal body as a contaminant of food or water. The contamination of such materials is derived from an antecedent case of the disease. These statements are supported by the facts that it is only when the act of abortion occurs that a large amount of highly-infective material escapes from the body, and that the bacillus is not capable of surviving outside the animal body for any length of time.

It must be stated, however, that the act of abortion does not constitute the sole means by which the organism may escape from the body, for it has been established beyond all doubt by workers in many parts of the world that cows infected with contagious abortion may pass out the bacilli in their milk. Further, the alimentary canal of calves may be a source of liberation of bacilli to the outer world. As already mentioned, infection with the bacillus of contagious abortion does not invariably lead to the act of abortion, and it is well known that the organism can, in a great many instances, be recovered from the stomach contents of aborted fœtuses. It is, therefore, logical to suppose that calves born at full term of infected cows may pass the bacillus out with the fæces. Even if the bacillus were not present in the stomach of the calf prior to birth, there is a very considerable chance that calves sucking infected cows will take the bacillus in with the milk and pass it out with their fæces. It should be emphasised, however, that in these cases the contamination of the fæces would, in all

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probability, be a very light one, and the risk therefore small.

In the early days of investigation of this disease it was, and is still by many farmers, a strongly-held view that the bull was the principal means of carrying the infection to cows. Experience has proved that that view is erroneous. It is not denied either that the bull may carry infection away on his penis after serving a cow that has recently aborted or that he himself may be actually infected and may pass abortion bacilli with his semen, but these methods of infection have ceased to be considered as of practical importance in the spread of the disease among cows.

There is abundant experimental evidence to show that it is difficult to infect cows by introduction of the bacillus into the genital passages, and it is also difficult to conceive how any appreciable amount of infective material could be introduced into the body by that path.

There is, however, much evidence to show that infection readily takes place by way of the alimentary tract, and it is not difficult to understand how readily food or water may become contaminated from the fœtal membranes or from the discharge which is liberated from the uterus at the time of abortion.

So far as investigation has shown at present, there are apparently only two parts of the body in which the bacillus is capable of establishing itself for any length of time. These are the pregnant uterus and the udder which has functioned.

It has been proved by careful experiment that, although a condition of infection can be set up by feeding maiden heifers and steers with cultures of the bacillus, recovery without any evidence of systemic disturbance takes place in a very short time.

It will thus be seen that, clinically, infection is only to be recognised when an infected cow slips a calf before full term.

You are all, no doubt, familiar with the appearances presented by the fœtal membranes in cases of contagious abortion. The most striking features are: first, that the lesions are non-putrid; secondly, that there is a variable amount of buff-coloured, rather glutinous discharge between the fœtal membranes and the uterine wall, and thirdly, the father characteristic macerated appearance of the cotyledons.

Upon these features one may base a very strong suspicion that the case is one of the contagious forms of the disease. Fortunately, however, we have at our disposal a means of ascertaining with a degree of certainty that is practically absolute, whether any case of abortion is of the contagious type or not. In view of this fact it is a very sound rule to follow that, as stated by Sir John McFadyean in one of his many contributions to the investigation of this plague, until proved otherwise all cases of abortion should be considered, and dealt with, as if they were cases of the contagious type.

This brings me, then, to the question of diagnosis. I will not expend time in detailing the history of the various methods of diagnosis which have been devised for the detection, by the use of biological agents and products, of a not-inconsiderable number of diseases. Suffice it to say that such of these methods as appeared to be applicable for the diagnosis of contagious abortion were tested, and it was definitely established by McFadyean and Stockman that in the agglutination test we had a ready and practically infallible means of detecting cases of infection with Bang's bacillus.

The principle upon which this test is based is as follows:—

When an animal becomes infected with an organism, that infection leads to certain changes in some of the body cells or fluids which endow these with characters not possessed by the cells or fluids of animals not so infected.

That this is so is clear from the fact that a tuberculous animal will react to tuberculin, and a healthy animal will not. It becomes, therefore, a matter, in the diagnosis of disease, of finding some means whereby these changes may be rendered evident.

The Agglutination Test. This depends upon the fact that when an animal becomes infected its blood serum acquires the power of clumping together abortion bacilli if these are suspended in it. The reaction is to some extent a quantitative one. That is to say, the intensity of the reaction is an indication of the degree of infection. I will not trouble you with details of the technique of the test, nor with the theories that have been advanced from time to time to explain its mechanism. Suffice it to say that to a suspension of the abortion bacillus in a solution of salt solution of 0·85 per cent. strength and containing 0·5 per cent. carbolic acid there are added varying amounts of blood serum from suspected animals. The tubes are incubated and the results read off. The exact technique varies in different laboratories, and I have therefore avoided going into details regarding the strength of the various dilutions and the period for which the tubes are incubated. Further, while there is very general agreement regarding the extreme value of the test for diagnostic purposes, authorities differ somewhat regarding the interpretation of results obtained. This is, after all, not surprising. You have all had experience of tuberculin reactions which you have been compelled to consider doubtful, and it is not less true of the agglutination test that one encounters reactions which, in the absence of further evidence, one must consider as doubtful, but I am stating a certain fact when I say that the percentage of doubtful reactions obtained with the agglutination test for contagious abortion is very considerably smaller than those of almost any other diagnostic technique. Further, in cases where the result is doubtful, it can, as a very general rule, be made certain either one way or the other by a repeat test after the interval of two or three weeks.

It is our experience at the veterinary colleges that if there is any evidence of clearing up of the emulsion in the tube which contains 2 per cent. of serum added to the bacterial suspension, that is an indication of the existence of infection. A weak reaction may indicate that the infection is of recent origin or it may be that it is of long standing. A repeat test will almost

certainly clear up this point for, if the infection is recent, a second test at an interval of a fortnight or three weeks will give a much more pronounced reaction. If it is of long standing there may be, and probably will be, no change. The reason for this is that while the capacity of the serum to cause a reaction increases rapidly in the early stages of infection, the process of recovery is generally a slow one and consequently the capacity to react may remain at or about the same level for considerable periods.

With this test, then, we have made sure of the first point to which I drew attention at the beginning of my paper, namely, we have as certain a method of diagnosis as it seems possible to devise.

The second point on which your attention will be concentrated is the steps that one can take to prevent the disease.

This is not an easy matter to dogmatize about, because the variations in the circumstances and conditions of different herds are almost endless. There is the self-contained and self-supporting herd, the herd that is largely but not entirely self-supporting, the herd in which new animals are frequently introduced by purchase, and the herd which is always changing its composition by sale and purchase. These are a few of the possible variations, and it will at once be apparent to you that in the matter of prevention of abortion no one scheme would be applicable to all of them.

Further, reference must be made with emphasis to the fact that it is not the nature of the herd that is the sole important factor when it comes to a matter of controlling the occurrence of contagious abortion. The fact that all the available evidence goes to show that the disease is readily acquired by susceptible animals by way of the alimentary canal is an indication that if control is to be obtained by segregation, and this is one of the means by which it can be achieved, that segregation must be of the very strictest nature. It is by no means always possible to enforce so strict a segregation. With these points before you you will realise the impossibility of detailing a cut and dried scheme which will fit all cases.

That it is possible to effect the complete eradication of the infection is proved. It can be done, and it has been done, where circumstances have permitted it. The factors which play the greatest part in determining whether it can be done are four: (1) that the herd is a self-supporting, or almost self-supporting one, (2) that the disease has not got a great hold upon the herd, (3) there is suitable accommodation for complete isolation, and (4) that the owner will go to the trouble of doing it and will not relax his vigilance.

In such a herd, in which a case of abortion has occurred, the first step is to have a blood test carried out of the animal which has slipped her calf. If the result is positive, that animal should be removed immediately from the premises to some other place which has no connection with it, and where there is a separate staff. The place where the abortion occurred should be cleansed and disinfected with the utmost care, not forgetting the boots and clothing of those performing the work and the tools used for the purpose. Then a general test of all the adult animals in the herd should be carried out. All reactors should be removed to the isolation premises at once. It will be apparent that a single test of this kind is not sufficient to make a clean cut of the herd into two—healthy and diseased—for the reason that some or perhaps only one of the animals passing this test has actually ingested infective material within a few days before the test has been carried out. The clean herd should therefore be re-tested after an interval of a month or so. Should any positive reactions be obtained, the reactor must be transferred to the diseased herd, and the test repeated. This process must be carried out until at two consecutive tests no positive reactions are obtained with samples of serum from the healthy portion of the herd.

From the many thousands of tests that have been carried out at the Royal Veterinary College, London, and from evidence gathered from all parts of the world it is clear that once a cow has become infected it may remain a carrier of the infection for periods running into years, although after aborting it may carry subsequent calves to full term. *Data* collected over many years show, in fact, that when cows are infected with contagious abortion it is the general rule that they do not abort more than once. The agglutination test, however, establishes beyond doubt that they may carry the infection and thus be a source of danger to other animals for many years.

It must be noted that it is not unknown for animals to abort twice and even three times, but these cases are exceptional. Such repeated abortions may conceivably be due to a single infection or to re-infection after recovery. Since it is exceptional for animals to abort more than once one must conclude that infection as a rule confers immunity, but sight must not be lost of the possibility of such an immunity not being permanent.

The second type of herd that I have instanced is one which is practically self-supporting, but which occasionally has new animals introduced into it. If such a herd is to be kept free of the disease it is little short of madness to introduce a new animal without the purchase being subject to the animal passing the agglutination test, and without scrupulous isolation and testing before it is allowed to run with the herd. The isolation should be practised for not less than a month after purchase, and the test carried out at the end of that time. This plan is suggested to counter the possibility of the animal having actually acquired the infection immediately before purchase.

What I have said thus far regarding measures of control applies to herds in which the disease has not got a strong hold, and to premises where strict separation of the diseased and healthy is practicable, and, clearly, the plans indicated could not be put into force on premises where a considerable proportion of the herd is infected and premises are not available for isolation. In such cases the best plan appears to be to try to limit the losses resulting from abortion by means of vaccination. The term "vaccination"

usually suggests the production of an attenuated or mild form of infection for the purpose of establishing immunity. This, however, is not the case in contagious bovine abortion. The only vaccine which appears to have any value is a living culture of the bacillus. In other words, vaccination against contagious abortion does not lead to the stamping out of the disease, but actually to the maintenance of the infection on the premises. But by vaccination it is possible to ensure that at any rate a very considerable percentage of animals will carry their calves to full term. The use of dead vaccine appears to be absolutely useless.

The vaccine must not, for obvious reasons, be administered to pregnant cows. Its application should be limited to non-pregnant animals, whether cows or heifers, and a period of two months should be allowed to elapse between vaccination and service to allow of the establishment of immunity and of recovery from the infection.

It is unfortunate that during recent years little has been published regarding the facts and figures of this method of dealing with contagious abortion, but such information as is available indicates that the method is of considerable value for the reduction of losses.

It will, no doubt, have occurred to some of you that if, as I have already said, the abortion bacillus is in many cases passed out with the milk of infected cows, the calves of such cows should acquire infection and immunity long before they are ready for breeding. If that were the case, the disease would clearly have died out very rapidly, as all the stock in the country would have become immune.

Many observations have been carried out with a view to ascertaining whether the calves born of reacting cows themselves react, and it has been found that they do. It must be noted, however, that the reactions given by such sera are not, as a rule, very pronounced, and also that the power of the serum to cause agglutination invariably disappears after a longer or shorter interval, usually about six weeks. Experiments have shown that the deliberate feeding of calves with milk known to contain the abortion bacillus has yielded parallel results.

According to some authors, this power of reacting to the agglutination test possessed by the blood of calves born of infected cows is due to the ingestion of antibodies contained in the milk, and not to actual infection of the calf.

In 1922 Craig and Kehoe published an account of their observations on the use of vaccine in an Irish herd. These extended over a period of three years, but as the herd was a utility herd, only ten of the thirty animals composing it were under observation throughout the period. The authors encountered the difficulty which always crops up when a method is being tried in actual practice, namely, that no controls could be used for purposes of comparison. But after vaccination abortions ceased for a period of two years, and then some of the vaccinated animals slipped their calves. On this ground they advise that vaccination should be repeated annually.

In any herd in which control of the disease has been undertaken by means of vaccination it is quite unnecessary to inoculate animals that have actually been infected naturally.

It is quite well known that in some instances the disease, if left to itself, tends to die out. This is because all, or the majority, of the animals become infected in the course of time, and though infected, cease to abort. While it cannot be denied that abortion bacilli make their escape from the body by paths other than *via* the vagina and so cause a risk of infection, it also cannot be denied that the greatest risk of infection to healthy animals lies in the enormous amount of infective material that is passed out when the act of abortion occurs. While abortions, therefore, are numerous or frequent, the risk of spread of the disease is great, but as the disease spreads through the herd abortions become less frequent, and this proportionately reduces the risk of infection, but cases may crop up from time to time.

Treatment. In reality, nothing of any consequence can be said under this heading. No amount of flushing out of the uterus will free an infected animal from infection, if for no other reason than that the uterus, as already indicated, is not the only place in which the organisms locate themselves in the body. The administration of antiseptics by the mouth is also quite useless. Nor, as recent work in America has shown, can an animal be freed from an udder infection by the use of dead vaccine.

Discussion.

The Chairman (Mr. H. W. Robson) said they had listened to a very interesting and instructive address. When he came he expected much, and he was sure he was not going away disappointed. He hoped they would reward the address by giving it a full discussion.

Mr. A. Linton Robertson said he would like more information about the mechanical transmission of the disease by the bull. After a cow had been served, some discharge came away. If there was infection, was there any chance of the contamination of another cow? Another thing he would like to know was whether calves from cows which had aborted, or calves which had been suckling such cows, were more susceptible to the disease than calves which had had no access to the abortion bacillus. Did Mr. Sheather advocate vaccination as a last resort? Did he prefer isolation?

Mr. W. A. Pool, of the Animal Diseases Research Station, Moredun, stated that it was a great pleasure to listen to Dr. Sheather on a subject like contagious abortion, because the latter was such an authority upon it. He was dealing with it more closely than others, and anything he said was very carefully weighed up. The whole point about abortion was that, while it had been studied for many years, the disease was still a terrible problem to stock-owners in this and all countries. Vaccination was carried out on a fairly large scale, but it had not yet become universal. Cows affected with abortion could give birth to calves at full term and the calves might live. These cows were as great a source of infection in a herd as

the cows which aborted. He did not think that sufficient work had yet been done in testing the uterine exudate of cows in infected herds which apparently calved normally. Whatever might be said about the method of infection, undoubtedly this was by ingestion in over 90 per cent. of cases. In the agglutination test they had a reliable means of diagnosis. The chief trouble in the test was the labour which the practitioner had to undertake in drawing blood from the jugular vein. It appeared to him that there was greater need for closer collaboration between the practitioner and the laboratory in dealing with abortion. If owners would agree to more frequent testing, the practitioner would be in a better position to advise as to which animals in a herd were the greatest danger.

Mr. Hugh Begg, Hamilton, said that Dr. Sheather's paper left on his mind two outstanding impressions. One was that, however able and complete the paper was, there was nothing very new disclosed compared with their knowledge of this disease five years ago. The second impression was that there was a lack of any reference to the writings of Dr. Williams, of America. Dr. Williams' text-book was probably the one that was most read in connection with the diseases of the genital organs in this country at the moment, and those of them who had read it would realise the contrast between two such eminent men as Dr. Williams and Dr. Sheather, differing thus so widely in their views regarding this disease, and Dr. Sheather had made no reference to this. Dr. Williams believed that abortion was not a specific contagious disease, on the ground that other organisms than the bacillus of Bang did invade the uterus and might cause abortion, so that no one had the right to regard abortion as a specific disease at all. He believed that the control of abortion by quarantine had failed, and that abortion vaccines containing living bacilli were dangerous and vicious. Dr. Williams considered that abortion could be caused by many organisms, and that no one had any right to regard it as a specific disease at all. Some years ago they had a County scheme in Lanarkshire under which they vaccinated with the Ministry's culture five thousand animals over a period of four or five years. The results were extremely various—good in certain circumstances, inferior in others—and they, together with the views of Williams and some others, left him in a most chaotic state of mind as to the propriety of the use of the vaccine as the best means for the control of the infection in an infected herd. He was disposed to believe that the vaccine was more useful than any other measure, but, in his judgment, where it was apparently successful to a degree, it got credit for much of the immunity that was really conferred upon the herd by passage. It was his experience in most of these herds where they were called in late in the day that the farmer had hidden the disease, and failed to seek advice and help until such a number were affected that he became overwhelmed. When such a case as that occurred, and they were called in to vaccinate, the results were almost invariably good. On the other hand, if they chanced to be called in early when but one cow had aborted and another was impending, and perhaps waited a day or two longer to see whether further cases would justify a positive diagnosis, and if they began then to vaccinate the empty animals they would find that their controls, if they had any, would do nearly as well as those that had been vaccinated. A general statement had been made, without very much qualification, as to the utility and reliability of the agglutination test. If any of them had to deal with a herd of pregnant animals that had already disclosed a few aborters, they would get a severe disappointment if they expected blood tests of uncalved cows to disclose those that were affected and likely to abort. Indeed, they would not, in many cases, get any reaction to the agglutination test, even a day or two after the animal had aborted. He would like to have it explained how it was that recently-aborted animals which were certainly harbouring teeming quantities of the bacilli prior to the act of abortion, gave no reaction to the blood test until a week or two had elapsed. Dr. Sheather made reference to a culture being somewhat attenuated, yet strong enough to give immunity to a heifer, but not potent enough to infect an older animal. He could understand why youngsters who had not got their sexual organs fully developed soon cast off the disease, but in the case of a cow with her sexual tissues fully developed, why should the virulence of this culture not increase and become exalted when she was equipped with the quality of tissues and organs that were admittedly the predilection seat of the organism ? They knew they had on occasion inoculated, of set purpose, with the live vaccine, animals which were pregnant, and did not produce abortion. One would argue that the cow that was pregnant, when vaccinated with live bacilli, should have the capacity of becoming a victim to abortion, and that in them the vaccine ought really to produce abortion. Many veterinary surgeons had used the vaccine from the Ministry in order to protect herds in which no abortion had appeared. He thought that was an immoral thing to do, and the Ministry would do well to cut off supplies from those who did this indiscriminately. He had inoculated some herds two years in succession, and taken blood samples thereafter in order that it might be determined which cows were still infected and which were not. He (Mr. Begg) did not even now understand when a cow was immune by the titre. He would like to know whether the animals with the high titre were the ones that were to be regarded as most likely to abort at the next pregnancy. When was the cow immune, as judged by the blood test ? That was his great difficulty ; he could never quite understand the explanations he had got. He would like Dr. Sheather to make that clear.

Mr. MacGregor, Dumbarton, said there were some points upon which he desired to obtain further information. The first was with regard to a handy apparatus with which to carry out the agglutination test in the field. Many people would like to be able to do it for themselves, and he had read in one of the journals recently of an apparatus whereby men at a distance from a laboratory could carry out the test themselves. Another point was one which dealt with the control of the disease. It was a most difficult thing to bring home a case to a guilty party. One would like, if one could, to get more evidence when inspecting farms. As inspectors, they were sometimes told by a farmer that he had bought a certain animal and that he blamed it for introducing the disease to his premises, but it was an exceedingly difficult matter to bring home the guilt to the guilty person who sold the

animal. He was not aware that the Abortion Order had helped to eradicate the disease one little bit. He did not know whether it was fair to ask, but had Dr. Sheather any suggestions to offer with regard to the better control of the disease? Did he think it should be made notifiable? In spite of the Order, the disease was still as rampant as ever.

Mr. ANDERSON, Pittenweem, said he was using a vaccine in the case of non-pregnant animals a few years ago, and accidentally two cows were vaccinated which were not supposed to be in calf. They eventually proved to be in calf, and their calves were born up to time and alive. The disease was fairly rife in the herd and these two cows might reasonably have been expected to abort if they had not been vaccinated.

Mr. CUMMING, Peterculter, stated that he had been using vaccine for a good many years now. In some herds he had been fortunate enough to eradicate the disease altogether, and he made it a practice to advise the farmer to buy a new cow at the "drop" and of vaccinating her at once. He had vaccinated heifers with fair results. On several occasions he had noticed a yellowish streak in the placenta, and discharge of a yellowish tinge afterwards. He would like to ask Dr. Sheather if he was right in thinking that such a cow was carrying the abortion bacillus.

Professor MITCHELL, of the Royal (Dick) Veterinary College, said Mr. Begg had brought up the question of Dr. Williams' work in relation to contagious abortion in this country. The idea of Williams was that contagious abortion was not a specific disease, but might be due to any of the organisms which produced infection. His (Professor Mitchell's) impression about contagious abortion was contrary to that of Williams, and agreed with the opinion which had been held in this country for a number of years. He thought the bacillus of contagious abortion was an important factor in the indirect production of sterility, but sterility, in very many cases, depended upon secondary infections which gained entrance after infection by the contagious abortion bacillus. Was this not the reason why, after using vaccine, difficulty was experienced in getting large numbers of animals in calf? He knew various herds in which vaccine was used where they had, for years afterwards, a big crop of sterility cases, and that, to his mind, was one of the important factors against the use of the vaccine. They might, as it were, control the abortions, but they controlled them to such an extent, in a number of cases, that they were left with no calves at all, or with only a very small number. It was difficult to assess really the effects of the use of the vaccine. This was the particular point he had in mind last summer when he was in Denmark, and made enquiries at various places where the use of vaccine was advocated, and he found it the most difficult thing in the world to get a definite reply. The usual answer was the continental shrug of the shoulders. Even at this stage, the authorities in Denmark were very doubtful whether vaccine was of any use at all. In this country, where new animals were constantly being brought into herds, it was a very risky procedure to use vaccine. He would like to know from Dr. Sheather if they got different strains of virulence in abortion? With regard to secondary infections, he was of opinion that in some cases it was possible that the secondary invaders overclouded the presence of the abortion bacillus, and his own impression was that that was what Williams was getting at in connection with contagious abortion.

THE REPLY.

Dr. SHEATHER, in replying to the discussion, said that the question of discharge had been raised. When a cow aborted, the discharge came when she slipped the calf, not after she was served. A question was raised as to whether calves fed with infected milk were more likely to become susceptible. Evidence went to show that there was not the slightest difference whether a calf had had infected milk or not, as calves fed upon infected milk passed through a brief period of infection which was not followed by any immunity. It had been asked whether it was better to isolate or to vaccinate. It was not a matter as to whether they would isolate or vaccinate. If they *could* isolate, isolate by all means. It would be madness to vaccinate a herd which was only lightly infected, and which could be dealt with by isolation. He was glad to hear the appeal by Mr. Pool for collaboration. Collaboration was important if they wanted to get results. One, like himself, working in a laboratory, appreciated that they were dealing with living things and surrounded by endless variations. It could not be said that if they did a particular thing in a particular way they would get a particular result every time. In reading through the scientific literature, he always suspected the man whose results came out absolutely as he wanted them. He looked with suspicion upon the fellow who had no setsback in research work. It was the same in the field, and they could only generalise on enormous results. It was no use trying to draw conclusions from a few things; it was only from huge figures that they could judge. It was quite impossible to explain a peculiar set of circumstances which had happened in one particular instance, because the factors might be variable; and he was afraid that answer would have to cover a good many of the questions that had been raised. He was simply not in a position to explain peculiar happenings in individual cases. He was a little disappointed when Mr. Begg said he had told him nothing new. He was not conscious of having omitted anything of importance. He regretted that Mr. Begg and others had not published their results regarding sterility following vaccination. With regard to vaccination, Professors Craig and Kehoe, of Dublin, were among the few who had published results on a small number of cases. They found that some animals which they vaccinated carried their calves for two seasons and then aborted again, and on that ground they recommended, as others had recommended both here and abroad, that vaccination should be carried out annually. He was not able to offer an explanation why some of Mr. Begg's animals did not react. He would like to ask Mr. Begg what was the condition of the fœtal membranes in those cases which were negative? The question was raised as to whether a cow had the capacity to exalt the virulence in connection with the use of attenuated vaccine. Frankly, he did not know. With regard to Mr. Begg's question whether, judging from the titre, it could be said that an animal was going to abort, the only information they could draw from the agglutination test was whether an animal was infected or not. He had not the slightest doubt in his own mind

that cows varied in their capacity to resist infection, in their capacity to react, and also in their capacity to become immune. They might get immunity which lasted. It was just another case of those variations which they were always up against. The apparatus referred to by Mr. Macgregor was the "Abortoscope," which was devised by Bevan, in Rhodesia. He devised that arrangement for use in the veldt, and, of course, it was impossible to get complete information from its use. Mr. Anderson raised the question as to whether his animals were infected when they were vaccinated. Were they tested before they were vaccinated?

Mr. ANDERSON: No.

Dr. SHEATHER said that if it was a herd in which there was abortion going, the explanation of those animals holding was, he thought, that they had already aborted, and they would have carried their calves in any case. It was not good enough to say that abortion was going on in the herd. He had never heard of any blame attaching to vaccination producing sterility. He had heard blame attached to abortion leading to sterility, but not vaccination.

Mr. BEGG: It is a very common complaint in Scotland.

Dr. SHEATHER: Please publish it. We cannot help you unless you give us the facts. If you do not publish them, then we are still in the dark as to your difficulties. Continuing, Dr. Sheather said Mr. Begg had complained that he had made no reference to Dr. Williams in his paper, but if he read the opening paragraph he would see the reason for that. It was impossible for him to go over the whole ground, and he had confined himself to a consideration of the particular infection due to the bacillus isolated by Bang and Stribolt in 1896. He, however, did not agree at all with Dr. Williams. He could not believe that Dr. Williams was right and, at the same time, believe that they could get the results they did in this country. Professor Mitchell evidently agreed with him (Dr. Sheather) as to the absolute necessity of having large numbers of statistics before they could judge results. He wanted hundreds of cases showing that vaccination caused sterility. He would not for a moment deny the possibility—in fact, he would agree—that strains of the bacilli might vary in virulence. He thought that the sterility following abortion, as distinct from ordinary sterility, was certainly due to secondary invasion. When they had a delicate organ like the uterus seriously upset, there was every possibility in the world of causing serious if not permanent disturbance.

ANIMAL EXPERIMENTATION IN 1925.

"Experiments performed on living animals reached" says *The Daily Express* "the enormous total of 209,014 in Great Britain last year, an increase of 31,199 over 1924. Much the greater part of the increase was in experiments without anæsthetics which numbered 199,612.

"Assurances are given in a return made by Major J. A. Giles, the Home Office inspector under the Cruelty to Animals Act, that the regulations governing such experiments are rigorously enforced, and that anæsthetics are compulsory for any operation more serious than injection or inoculation.

"Serious experiments numbered 9,402. In those which are conducted under licence alone it is laid down that the animal must be prevented from feeling pain throughout the experiment, and that it must be killed before it recovers from the influence of the anæsthetic if the pain is likely to continue after the influence has ceased. Exemptions from this obligation were, however, granted in nearly half of the 9,402 cases.

"This is the inspector's comment:—

'Except in a few cases, the operations are required to be performed antiseptically, so that the healing of the wounds shall, if possible, take place without pain. If the antiseptic precautions fail, and suppuration occurs, the animal is required to be killed. It is generally essential for the success of these experiments that the wounds should heal cleanly.

'After the healing of the wounds the animals are not necessarily or even generally in pain, since experiments involving the removal of important organs, including portions of the brain, may be performed without giving rise to pain after the recovery from the operation, and after the section of a part of the nervous system the resulting degenerative changes are painless.'

"The inspector adds, referring to cases of induced diphtheria or tuberculosis, that even when they end fatally the animal is generally apparently well and takes its food as usual until a short time before death.

"Nearly 13,000 experiments were performed by twelve licensees in the course of cancer investigations, most of them being inoculations of mice or exposure of animals to radiation. A large number of experiments was conducted for Government departments and public authorities, while nearly one-half of the total had the testing and standardisation of drugs for their objects.

"The total number of licensees is 1,091. Only two irregularities were reported. In one case a woman zoölogist immersed trout in polluted water, and another licensee made simple inoculations into cats, both acting without authority."

SIR ARCHIBALD GARROD'S APHORISMS.

Addressing the students of the Westminster Hospital at the opening of the Autumn Term on "The Science of Clinical Medicine," Sir Archibald Garrod, the famous physician, gave pithy expression to a number of professional truths, from which we select the following:—

"On the one hand, some men of scientific tastes and interests—for whom the work of the laboratory has great attractions, whereas the practice of medicine has none—enter the profession, and by their researches contribute greatly to the advance of our science and art. In that way medicine is the gainer. But, on the other hand, there is real danger that the great majority of men of scientific bent will turn aside and desert clinical work, in order to devote themselves to work in the laboratory. This tendency is increased by the attitude of some of the laboratory workers, who regard clinical method as a subject hardly worthy to attract men of scientific ability."

. . . . . .

"In the first place, the clinician seeks to know the nature and seat of the patient's illness, and without such a diagnosis his treatment must needs be perfunctory. His next aim is to do what he can for the relief of the patient's symptoms, and, if possible, for the arrest of his malady

(*Continued at foot of first column next page.*)

CLINICAL REPORT.

Atypical Anthrax.

(*a*) Non-Febrile phase in affected Animals.
(*b*) *Ante-mortem* Demonstration of bacilli in the Blood.

By Hugh Begg, F.R.C.V.S., County Veterinary Inspector of Lanarkshire, Hamilton.

The case related by Mr. Davidson in your issue of the 9th inst., and his enquiry regarding the experience of others in finding cases of anthrax exhibiting an afebrile phase, have prompted me to send a reply.

As the vast majority of anthrax cases, authentically proved by microscopic examination, are only seen by the Veterinary Inspector after death, we are seldom privileged to observe fatal cases while they are still alive, and as most of these are febrile until just before collapse, the finding of a case with a normal or subnormal temperature at a point succeeding a high temperature and several hours prior to death is a still more rare experience. Such cases are, however, met with, and of those we have seen the following one may be considered typical. I quote from notes set down at the time the case occurred, four and a half years ago.

A cow died of anthrax on a farm in Lesmahagow Parish on 6th April, 1922. As usual, the owner was instructed to observe his stock carefully and report to the local police any signs of illness in the others. Late on the evening of 10th April, 1922, it was reported by telephone from the local police station that the stock bull was shivering and registered a temperature of 107°F. It was then stated that the animal had been a little off-colour in the late afternoon, but was now behaving worse, being restless and excited. As it was late and the farm fourteen miles distant I asked the owner to report progress next morning. At an early hour on the 11th the report was favourable and the temperature normal. I visited the farm at 11 a.m., when I found the temperature to be 99·2°F., pulse 80, respiration normal, and temperature of both horns normal, although the surface of the body was suspiciously cold. The animal was ruminating but defectively, at the rate of from thirty-five to forty-seven cuts per bolus, with occasional interruptions; there was no evidence of blood in the fæces, and a smear of blood stained with McFadyean's methylene blue was grass-green to the naked eye and void of bacilli when examined microscopically. The owner was advised that the bull was seriously ill, but seemed to be putting up a good fight. The animal was put in isolation and made comfortable, and was allowed only small quantities of soft food and a little hay. On the morning of the 12th April, the police reported that the bull's temperature was 105°F. and that he was trembling slightly. Mr. McGregor, my assistant, visited at 1 p.m. on the 13th April, when the temperature was 106°F., respirations eighty per minute, and pulse rapid. The muzzle was still wet; the bull rose occasionally and lay down on the other side, and when down a small part of the rectum, highly congested, was exposed. Fæces just passed were unaltered in character or colour. The microscopic examination of a smear of blood taken from the ear revealed anthrax bacilli. The bull died at 4 p.m., *i.e.*, three hours after bacilli had been demonstrated in the blood.

Case in a bull in which anthrax bacilli were found in the blood and nasal discharge nearly seven hours before death.

The following is a *verbatim* copy of the private report I sent to Sir Stewart Stockman on this case, which I regarded as unique.

Diagnosis of Anthrax before death.

To-day I have sent to your Laboratory materials and particulars relative to a third fatality which occurred yesterday in the outbreak at North Garngour, Lesmahagow, (James T. Orr). My object in writing this private note is to say that I had the perhaps unique opportunity of observing the animal for nearly seven hours before death, and took notes of the symptoms shown. Acting on my advice to report at once any illness observed in the herd, the owner notified me that his bull showed signs of illness. I visited at 10-30 a.m. and I was able to demonstrate typical anthrax bacilli in the blood and nasal discharge about six hours and fifty minutes before death. I have a smear taken at 10-30 a.m. from two pink-coloured streams issuing from the nostrils, a blood smear at 10-40 a.m., and one at 12 noon—all showing anthrax bacilli—as well as swabs taken at these hours, but the latter will obviously be less interesting

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(*Continued from previous page.*)

These are the direct and immediate aims of the practitioner, but behind and beyond them is the study of disease."

. . . . . .

"It is the privilege of the surgeon to obtain definite results; he removes the inflamed appendix and the danger to the patient is at an end; by the sacrifice of a limb the whole body may be saved. The physician, on the other hand, has usually to help the patient to hold his own whilst Nature works a cure."

. . . . . .

"Addison's description of the disease which goes by his name was the starting-point of our present knowledge of the functions of the endocrine glands; and the recognition of the hormonic action of their secretions, and of their mutual interdependence, constitutes one of the most conspicuous advances of physiology and pathology during the last half-century."

. . . . . .

"If we are to hold our own as members of the army of research, we need to see that our work is up to the required standard; that our observations are sufficiently precise, and are confirmed by the method of control; that our statistics will bear examination by statisticians, people whom it is not easy to satisfy, and that our hypotheses are legitimate inductions from facts which are clearly established."

. . . . . .

"Medicine is always in a hurry. The patient and his friends are only too apt to mistake scientific caution for incompetence; to demand a cut-and-dried diagnosis in an impossibly short time; and to estimate a ready dogmatism above a reasoned uncertainty."

than the slides. If you consider this experience exceptional, I will send you the slides, etc., and a note of the symptoms shown from hour to hour until death occurred at 5-20 p.m. The smears have very many interesting features when compared with *post-mortem* smears of anthrax. On two former occasions, at one hour and at one and a half hours before death from anthrax, I failed to get bacilli in blood smears.

Notes.

16*th February*, 1917.

10-30 a.m.—When I arrived at the Farm I was informed that the bull had diarrhœa on the evening of the 15th and seemed feverish, but he took his morning meal ration on the 16th.

Pulse 96. Temperature 107.6°F. Respiration 28.

Slightly coloured discharge from nostrils (smear No. 1 taken, shows anthrax bacilli).

A little restlessness and anxious expression of countenance.

10-45 a.m.—Took No. 2 smear of blood from tail—this shows many anthrax bacilli, but there is an absence of pink, waxy-looking masses seen in *post-mortem* smears stained by McFadyean's stain.

11-15 a.m.—Blood-tinged fæces passed—bull crouches occasionally and is rather more restless. A little later he picked up a slice of turnip and ate it. He inclines to lie down, but does not; sniffs at wall with neck extended; some movement with feet; respirations 32.

11-45 a.m.—He jerks his head in an upward direction a little like a horse under the influence of barium chloride, and his crouching movements are more marked.

12-15 p.m.—While his neighbours are being fed he is quite alert, and takes a drink of meal gruel greedily and thereafter some cold water; cleans out pail and licks lips.

Smear No. 3 made from swab of blood from puncture at root of tail—number of bacilli greater.

12-30 p.m.—Pulse 112; temperature 107°F. Urine passed.

1-40 p.m.—He lies down, and when urged, rises without difficulty and immediately passes very bloody fæces.

The signs of internal pain now consist of bending of knees, shaking of tail and some head movements.

He lifts a handful of fresh hay thrown to him and chews at it carelessly. Occasionally ceasing chewing while the hay protrudes from mouth.

2-20 p.m.—Pulse 112; temperature 104.5°F., respiration 45 and short in character.

He can rise quite firmly, but is very ill at ease, and looks round anxiously at people. He snuffles at the straw and lifts it on his horns.

Pulse 120; heart beats easily counted with hand over left chest wall.

3-5 p.m.—He lies down after passing tarry-looking fæces.

Respirations now "heaving" in character.

He inclines to put his head in the milk-fever position, but is much too obsessed to remain long in one attitude.

He stretches out occasionally both legs and head as if in pain.

3-15 p.m.—Pulse 110. He rises, but soon lies down again.

3-30 p.m.—He rises voluntarily and emits a sigh that is almost a groan; gets up and down every four or five minutes; presses nose on ground, making respiration noisy; moans; usually coughs when he rises; puts nose up in the air and against the wall; lashes tail and looks as if he did not know how to put in his time; movements all calculated, none are violent.

4-15 p.m.—He passes a large quantity of black tarry-looking fæces; heaving; lies down; there is much blinking of eyelids and constant movements of head in a quiet way; nose pressed on ground, and an occasional moan.

4-30 p.m.—Much sighing and blowing, and a good deal of blood at his nostrils.

4-50 p.m.—Black liquid diarrhœa when lying, and cannot be urged to rise.

From this time on he behaved like an animal dying from internal hæmorrhage, and death occurred quietly at 5-20 p.m.

As both of these cases relate to bulls two years old in good condition, and as we have repeatedly failed in recent years to demonstrate bacilli in the blood of bullocks and females (cows and heifers) at short periods before death from anthrax, we have thought it likely that mature bulls resist death from anthrax for a longer period than other bovines after the bacilli have entered the circulation.

There is no reason to doubt, however, the circumstantial evidence we have that many animals contract anthrax, suffer from a local lesion and are highly feverish for a time and recover without any treatment because the tissues have put up a successful fight and septicæmia has not occurred.

I think it should be regarded as good practice, when a bovine animal in receipt of some foreign artificial feeding-stuff suddenly develops a temperature of 106°F. or over and is obviously not the subject of acute uterine or mammary trouble, to regard the case as highly suspicious of anthrax and have it put into isolation. The case is all the more suspicious if one has already died of anthrax, and we have, on occasion, seen four or five such animals requiring isolation—an odd additional one dies and the others recover in the course of two or three days.

ABSTRACTS.

Immunisation against Tetanus.

The author has shown that horses injected twice with anatoxin acquire a solid immunity against tetanus and that this immunity lasts for a year or more.

In the present paper he records the results of a repetition of the vaccination.

Horses which had been vaccinated a year previously were first given 10 cc. of pure tetanus anatoxin, and a week later the same dose with some sterile tapioca added to it.

The animals were bled for testing the serum just before the second injection was given, and a week after it.

One cubic centimetre of serum from the first bleeding was found to neutralise 10 lethal doses of toxin. Thus the titre of the serum was twice as high as the maximum obtained by the immunisation a year before.

Blood taken seven days after the injection of anatoxin and tapioca yielded a serum of which 0·02 cc. completely neutralised *in vitro* 100 lethal doses of toxin. With a view to comparing these results with those obtained by serotherapy, the author injected 10 cc. of Pasteur Institute antitetanic serum into a horse. Four days later 1 cc. of serum neutralised 10 lethal doses of toxin. Serum taken 15 days after injection neutralised toxin only in the proportion of 1 cc. per 1 lethal dose.

[**Immunisation antitetanique du cheval. Effets des injections d'anatoxine sur des sujets anterieurement vaccines.** (Immunisation of the Horse against Tetanus. The Effects of Injections of Anatoxin on Animals previously Vaccinated.) (P. DESCOMBEY). *C.R. Soc Biol.* 1926. Feb. Vol. 94. No. 5. pp. 315-316. *Ex. Trop. Vet. Bull.*, Vol. 14, No. 3.]

The Isolation of Bacillus Abortus.

The author describes a technique to replace the method of guinea-pig inoculation with subsequent cultivation from the spleen after about 3 weeks. It is based upon Smith's observation that whereas in the peritoneal cavity most bacteria, other than spores, are killed, the abortion is not.

After intraperitoneal inoculation with the suspected material one of the guinea-pigs is chloroformed to death on the fifth day. The peritoneal cavity is flushed out thoroughly with several cubic centimetres of broth, and after it has been introduced and withdrawn a number of times, half a cubic centimetre of the broth is used for the inoculation of agar slants. Then the spleen is exposed and a fragment is torn off and transferred to each of the slants. The tubes are incubated in a jar with an atmosphere of 5 per cent. carbon dioxide. Growth develops in 2 to 7 days and usually without contaminations. Should no growth take place or should there be heavy contamination the second guinea-pig is used in the same way. Should this fail, the third is used for spleen culture at three weeks.

It is noteworthy that in no case, out of twelve of which details are given, were any gross lesions found in the spleen.

The organism was obtained from the spleen as early as the third day, and regularly by the fifth day.

[**A Rapid Method for the Isolation of *Bacillus abortus* from Uterine Exudate and Diseased Placenta.** (J. B. NELSON).—*Jl. Exp. Med.* 1926. Mar. 1. Vol. 43. No. 3. pp. 331-338. *Ex. Trop. Vet. Bull.*, Vol. 14, No. 3.]

Keeping Cattle in a Tsetse-fly Belt.

The work here recorded is being done in connection with Swynnerton's experiment of cleaning large areas of bush. The attempt is being made to protect the oxen used for ploughing up the cleared and stumped areas in the neighbourhood of bush.

Two lines of treatment are being followed. These are Berg's system of injecting a mixture of 2·5 g. "Bayer 205" and 1 g. of tartar emetic at intervals of a fortnight, and the injection of tartar emetic alone.

A batch of 30 bulls was used. Ten of these received tartar emetic alone (25 cc. of 4 per cent.), 10 received 2·5 g. of "Bayer 205" and 1 g. of tartar emetic in 25 cc. of water, and the remaining 10 were controls.

Of the controls 6 died within 3 months, and none survived 8 months. Of the 10 receiving tartar emetic once a fortnight (approximately) 2 died within 7 months, and the remaining 8 were in marketable condition, although infected at that time.

Of the 10 treated with the two drugs, 3 were dead within 7 months, 1 was very ill, but the surviving 6, although infected, were in marketable condition.

The parasites responsible for the infections were *T. congolense* and *T. vivax*, and the fly was *G. swynnertoni*.

[**An Attempt, with the Aid of Drug Treatment, to keep Cattle in a Tsetse-fly Belt.** (H. E. HORNBY and W. A. BURNS).—*Jl. Comp. Path. and Therap.* 1926. Mar. Vol. 39. No. 1. pp. 30-38. *Ex. Trop. Vet. Bull.*, Vol. 14, No. 3.]

SEX-LINKED METHOD OF POULTRY BREEDING.

The Ministry of Agriculture has published a booklet on "The Sex-linked Method of Poultry Breeding," by Professor R. C. Punnett, F.R.S., of Cambridge, who has devoted a number of years to the study of the sex-linked character, which facilitates the identification of sex at birth. The booklet briefly states the general principles of sex-linked breeding and the crosses by which reliable results can be obtained, which at present are confined to (1) silver-gold; (2) barred-unbarred; and (3) light-dark shanks; the females being mentioned first in each case. The booklet is rendered more useful to the rank and file of poultry breeders by the inclusion of plates showing the actual colours and markings of male and female chicks resulting from various sex-linked crosses. It can be obtained from the Ministry of Agriculture, 10 Whitehall Place, London, S.W.1. (9d. or 1s. in quarter-bound covers).

National Veterinary Medical Association.

Quarterly Meeting of Council.

A quarterly meeting of Council of the National Veterinary Medical Association of Great Britain and Ireland was held at 10 Red Lion Square, W.C., on the afternoon of Wednesday, October 6th, 1926.

The President, Professor G. H. Wooldridge, occupied the chair, and there were also present Dr. O. Charnock Bradley, Lieut.-Colonel J. W. Brittlebank, Professor J. B. Buxton, Mr. J. H. Carter, Major R. Catmur, Mr. J. C. Coleman, Professor J. F. Craig, Mr. H. J. Dawes (Hon. Secretary), Major G. W. Dunkin, Mr. A. Gofton, Mr. H. P. Hogben, Captain H. Kirk, Mr. C. O. Langley (Solicitor), Captain J. F. Macdonald, Mr. C. Masson, Mr. J. McKinna, Mr. J. W. McIntosh, Mr. R. Barons Nelder, Lieut.-Colonel J. W. Rainey, Mr. W. D. Rees, Captain J. R. Rider, Lieut.-Colonel P. J. Simpson, Mr. E. Alfred West (Hon. Treasurer), and Lieut.-Colonel T. D. Young, together with the Secretary, Mr. F. Knight.

The minutes of the two meetings of Council held at Dublin in July were read and approved, and were signed as correct.

Apologies for Absence. The receipt of letters, or messages, of regret for inability to attend the meeting was announced from the following:—Captain H. R. Allen, Captain James Anderson, Captain W. F. Aston, Captain J. J. Aveston, Captain T. J. Bosworth, Mr. W. H. Brooke, Mr. G. N. Gould, Major F. T. C. Hobday, Mr. R. Hughes, Mr. J. Ewing Johnston, Mr. J. S. Lloyd, Mr. G. P. Male, Mr. W. C. Miller, Major-General Sir John Moore, Major H. Peele, Captain W. Shipley, Captain J. Waddell, Captain G. W. Weir and Professor A. W. Whitehouse.

Correspondence.

(1) From Mr. R. S. Narayanan, G.M.V.C., of Rampur State (U.P.), India, a graduate of the Madras Veterinary College, making application, under Article 20 of the Articles of Association, for associateship.

The President read the Article 20 governing the election of Associates and proceeded to say that, as far as he was aware, that was the first application that had been made in that connection. At present, they had no associates of that kind, and it was for the Council to decide whether or not they would accede to Mr. Narayanan's request.

After discussion, it was resolved not to grant the application.

(2) From the Town Clerk of Torquay, expressing pleasure at the decision of the Annual General Meeting to hold the next Congress of the Association in that town, in response to the Mayor's invitation.

(3) From Lieut.-Colonel J. W. Brittlebank, thanking the Council for his election as a Vice-President of the Association.

The President: I have two letters which I think it might interest you to hear. After the meeting at Dublin, and after consultation with Professor Craig, I thought it would be a good plan to write to Commissioner Dr. W. C. O'Dwyer, who was responsible for according us the official welcome to Dublin, and who attended as many of our meetings as he found possible, thanking him for the warm welcome which he had extended to the Association and, at the same time, informing him that the Association would be very glad to assist in any way in its power should he ever desire to ask its advice on any matters appertaining to its sphere of work.

The President then read the Commissioner's letter, in which the latter said: "I regret extremely not that I did so much, but that I could do so little. I shall avail myself of your very kind offer of advice whenever I require it."

Proceeding, the President read to the Council a letter from Dr. Juan E. Richelet, of the Argentine Legation, who was one of the Association's guests at the Dublin Congress, congratulating the Association on the success achieved and tendering thanks for the manner in which he had been received. Dr. Richelet concluded: "It will be a great pleasure to me to report to the Argentine Veterinary Surgeons the subject matter of the important papers read at the Congress, and I am sure this will be of great interest to all."

Professor Craig: I would like to say that I received a copy of the letter which was sent to Commissioner Dr. O'Dwyer, and that the tone of the letter was very much appreciated, and will be very much appreciated, by those who know of it and will get to know of it on the other side.

Honorary Membership. Upon the proposition of the President, seconded by Lieut.-Colonel Young, it was decided to recommend to the next Annual General Meeting of the Association the election of Professor Dr. L. De Blieck, of Utrecht, as an Honorary Member. In making the proposition, the President said that those who were present at Dublin could not have failed to appreciate the very considerable assistance rendered by Dr. De Blieck in making the Congress a success, for his communications were of very great interest and value. He was a very keen, enthusiastic worker, and one, moreover, who was most anxious to collaborate with his British confrères.

Election of New Members. The following gentlemen, having completed the requisite forms of application and paid their subscriptions, were unanimously elected members of the Association: Messrs. D. H. Aldis (Hadleigh), Carter Armstrong (Bristol), A. Brownlee (Mid-Calder), C. J. Callow (Burgess Hill), F. W. Chamberlain (Cheam), Captain W. D. Connochie (R.A.V.C.), J. M. Crowe (Edenderry), R. E. C. Dowling (Hawera, New Zealand), G. F. Elliott (Ramsgate), R. Gorman (Livingstone, Northern Rhodesia), W. Hackett (Donington), P. J. Hayes (Enniscorthy), R. L. Higgins (Hereford), R. Ewing Johnston (Belfast), H. L. McConnell (Belfast), M. J. McGing (Thame), T. A. Mernagh (Wexford), G. Moir (Aberdeen), A. L. Mullen (Liverpool), D. O'Brien (Dublin), M. J. Ryan (Westport), W. Sewell (Uckfield), R. A. B. Stanhope (Federated Malay States), T. Treacy (Nenagh),

J. D. Whitty (Tralee), D. R. Wilson (Eddleston), Miss O. B. Woodward (Dublin).

Following upon the above elections, the PRESIDENT remarked: "That is, as I am sure you will all agree, a very good number, gentlemen, and represents a very satisfactory increase in our membership. I trust that at all our subsequent meetings as large a number of applications, or even a larger, will be before us.

REPORTS OF DELEGATES TO THE IMPERIAL CONGRESS OF THE ROYAL SANITARY INSTITUTE.

Major G. W. DUNKIN presented the following report:—

Mr. President and Gentlemen,—I have pleasure in attaching my report on the Jubilee Congress of the Royal Sanitary Institute, held in London this year, and which I attended as your delegate.

The Congress was held from July 5th to July 10th inclusive.

Unfortunately, your delegate was prevented from attending the inaugural meeting and the reception of delegates by the President of the Institute, the Duke of Northumberland, but all sectional meetings which it was thought would be of interest to the veterinary profession were attended. One of these was held on Wednesday, July 6th, in the Section of "Hygiene of Food." In this Section it is pleasing to note that there are two colonial and two foreign veterinary graduates among the Vice-Presidents. Papers were read entitled "The Preservation of Meat during Transport by Chilling"; "The Preservation of Fruit during Transport"; and "The Preservation of Eggs." The discussion was opened by Lieut.-Colonel T. Dunlop Young, who was followed by Captain Ross Grant.

The first of these papers was read by Mr. A. T. R. Woods, the General Manager of the Nelson Shipping Line, and was freely interspersed with lantern slides. One of the main points (which was, to many of us, new) was the spraying of cattle with cold water before killing, it being stated that this process removed mental stress and rendered the subsequent setting of the flesh more perfect. This point was more largely dealt with by Colonel Young in his paper, "The Work of the Veterinary Officer from the Pampas of Argentina to Smithfield Markets," which was read the next day before the Section of Veterinary Inspectors. The meeting was a full one and the discussion was sustained and most instructive, Colonel Young, as usual, showing complete mastery of his subject. It is well to know with what thoroughness animals and meat are dealt with in other countries and the care which is taken to ensure that, when received here, the latter is in a fit state for consumption, and I hope that this excellent paper, accompanied with the wealth of pictorial assistance, will be presented at some time in the near future to other veterinary meetings.

On Friday, July 9th, Professor Buxton gave us a real treat in his paper entitled "The Double Intradermal Tuberculin Test in Cattle and the Potency of Tuberculin."

There were present between 50 and 60 delegates to hear of the further researches into this subject, and it is not too much to say that none went away disappointed. Some quite new work was on this occasion published for the first time. Captain S. R. Douglas, the Chairman of the Tuberculin Committee, was originally asked to open the discussion. He was, however, unfortunately unable to be present. Several took part in the discussion which was sustained until 12-30, culminating in a hearty vote of thanks to Professor Buxton.

A feature in connection with the veterinary section which cannot be passed without mention was the presence of Alderman Phené Neal as Chairman, and I feel I should be failing in my duty as delegate if I failed to lay stress on the keen interest and knowledge which Alderman Neal showed throughout the session. His sympathy with the profession is well known and, although many of us would have preferred to see one of our own profession in the Chair, it is not too much to say that the next best choice was certainly that of Alderman Neal.

Your delegate was, unfortunately, prevented from attending the Congress Dinner; nevertheless, many veterinary surgeons were present, including Professor G. H. Wooldridge and Mr. F. L. Gooch (Secretaries), and also Mr. J. R. Hayhurst, Recording Secretary.

On the evening of Friday a reception, given by the Lord Mayor and Corporation of the City of London, was held in the Guildhall. Your delegate attended. The evening was a most enjoyable one, many veterinary surgeons attending, among whom were Professor G. H. Wooldridge, London; Lieut.-Colonel P. J. Simpson, Maidenhead; Mr. F. L. Gooch, Stamford Baron; Mr. F. T. Trewin, Watford; Mr. J. McAllan, Aberdeen; and many others.

Many subjects were dealt with which were of great interest to us in Sections other than that of the Veterinary Inspectors, including a masterly add ess by the Rt. Hon. Lord Riddell on "The Press and Preventive Medicine"; "The Need for Public Abattoirs and the Abolition of Private Slaughterhouses to facilitate Inspection," by the Chief Sanitary Inspector of Leicester.

The Congress was very fully attended, and altogether 50-60 veterinary surgeons attended from all parts of the United Kingdom, but one feared that many appointed delegates were absent.

A copy of all papers read is enclosed.

G. W. DUNKIN, Major.

Mr. G. P. MALE also reported, as follows:—

Mr. President and Gentlemen,—I beg to report that I attended the Royal Sanitary Institute Congress on July 9th, 1926, in place of the appointed delegate, who was unable to attend.

Mr. Gooch has very kindly supplied me with notes of the meeting on July 8th, but as the papers and discussions have all appeared in *The Veterinary Record*, it is hardly necessary for me to deal with them in detail. I may say, however, that the Conference was well attended and was most successful.

Mr. Alderman Neal made a splendid chairman and the veterinary profession is indebted to him for his great interest and support.

The papers presented by Colonel Dunlop Young and Professor Buxton were of a high standard and produced a good discussion, in which members from other sections participated. Those who had the opportunity of attending at the Guildhall in the evening will have most pleasant recollections of the magnificence of the place and the hospitality enjoyed.

GEO. P. MALE.

Mr. GOFTON: I beg to move that the delegates be thanked for their attendance on our behalf, and for the reports which they have presented.

Colonel SIMPSON seconded, and the motion was carried with acclamation.

REPORTS OF COMMITTEES.

APPOINTMENTS COMMITTEE. Mr. GOFTON read the following report of this Committee, and moved its reception and adoption:—

A meeting of the Appointments Committee was held in this room this morning, Mr. Gofton presiding.

The Committee gave consideration to the scale of whole-time salaries for veterinary inspectors at present operative, with a view to its revision.

It was agreed to recommend to the Council the adoption of a scale (given) which, it was further agreed to recommend, should not be published in *The Veterinary Record*.

The motion was seconded by Professor BUXTON.

Upon the report being thrown open for discussion, Mr. MCKINNA said that he was wondering how, if the scale of salaries was not published, knowledge of it would be obtained by the members of the profession.

The PRESIDENT informed Mr. McKinna that there would be an intimation in the *Record* that such a scale had been drawn up and that it could be obtained from the office, confidentially, upon application.

Mr. MCKINNA said that he was greatly concerned that men making application for the posts in question should be acquainted in advance with the terms of the scale laid down by the N.V.M.A.

Mr. HOGBEN: How does this scale compare with the Ministry of Agriculture scale?

Mr. GOFTON: In answer to that question, the scale of salaries payable to veterinary officers of the Ministry of Agriculture is set out on page 344 of the Register of the Royal College of Veterinary Surgeons. It states:

"The staff is to consist of:—

1	Chief Veterinary Officer and Director of Veterinary Research	£1,400
1	Deputy Chief Veterinary Inspector	£1,000
9	Superintending Inspectors ...	£600—£25—£800
30	Divisional Inspectors	£450—£20—£600
60	Inspectors (15 non-established)	£250—£15—£450

All appointments carry pensions, except those of non-established inspectors. To the salaries indicated must be added Civil Service Bonus."

Mr. HOGBEN: There is no question that a good many whole-time men should not have fees less than those employed by the Ministry of Agriculture, because they are experienced men, whereas the latter are very often men just out of college, quite raw recruits. I think the old scale made some allowance for experience as well as for the holding of degrees.

The PRESIDENT: It is only as it applies to the junior inspectors that the stress is laid on degrees.

Mr. HOGBEN having complained of the smallness of the suggested minimum payable to junior inspectors, the PRESIDENT pointed out that many of these men were newly-qualified and could not expect to get more if they went out as assistants to private practitioners.

Professor BUXTON asked Mr. Hogben if he suggested that promotion for these inspectors should be by examination, as was the case in the Ministry. Did he suggest that the same terms of service should apply in these cases as in the case of the Ministry of Agriculture? He (Mr. Hogben) had said that they should have the same salary; then was it his opinion that the same terms of appointment and promotion should apply?

Mr. HOGBEN: Whether other terms should apply is another question, but I think they should have the same salary. I think it would work in more than one way, because if you lay down a low scale of fees for whole-time men, part-time men, when they apply for higher fees, will be met with the reply "We can get cheaper men."

The PRESIDENT: Have you any proposition to make?

Mr. HOGBEN: I do not wish to reflect in any way upon the work of the Committee, but if I put a proposition forward it would be that the report might be referred back with a view to co-ordinating the scale of salaries with that of the Ministry of Agriculture.

Colonel YOUNG: If that is a proposition, I second it.

Mr. GOFTON: I think it ought to be made clear to the Council that this scale is a minimum—it is by no means an attempt to fix a maximum. I do not think that Mr. Hogben's fear is likely to materialise in practice. With regard to the placing of junior inspectors on the same basis as Ministry men, I would point out that the Ministry of Agriculture requires a certain standard of competence and the capability of carrying a certain measure of responsibility. In the case of a junior local authority appointment, a man can usually be appointed requiring less experience, and to my mind it would be a mistake to lay down a scale of salary for a junior officer, newly-qualified, which is going to make it almost impossible for a local authority to appoint such men. The duties of the appointment, and the responsibility attaching to it, may be such that its value does not exceed what has been specified here as a minimum starting salary. While we are considering certain figures, that is not to say that the scale of salaries should be brought down to those figures, it simply means that the scale of salary may be made commensurate with the measure of work and responsibility attaching to the post.

Mr. HOGBEN: I do not think that these appointments will necessarily fall into the hands of junior

men; they may fall into the hands of senior men, and they will try and get the senior men down to the minimum figure.

Colonel YOUNG: I appreciate what Mr. Gofton has said, but I think there is a good deal to be said for the idea underlying Mr. Hogben's remarks—that to raise our status in the country it is essential to raise the salaries paid our men, in whatever department of veterinary work they may be found. (Hear, hear.) The only objection is that if we ask too high a salary for juniors, local authorities may think the cost too great and that they may therefore put in lay inspectors to do the work.

The PRESIDENT: I will put it to the meeting: Those in favour of referring the suggested scale of salaries back to the Committee for co-ordination with the Ministry's scale, please show.

The amendment was lost by a large majority.

The proposition that the report of the Committee be received and adopted was carried.

EDITORIAL COMMITTEE. Colonel SIMPSON, the Chairman of the Editorial Committee, read the following report, and moved its reception and adoption:—

The Editorial Committee has met on five occasions since the date of the Annual General Meeting.

The Committee have had under consideration the question of inviting Colonial Veterinary Associations to utilise the columns of *The Veterinary Record* as a means of acquainting members of the profession at home with conditions of practice and service in the Colonies. To this end it was decided to invite the co-operation of the Organising Committee.

Consideration has been given to the desirability of publishing in the *Record* an article or articles dealing with book-keeping, but no decision has been arrived at.

At the request of the Editor of *Public Opinion* an exchange has been effected between the *Record* and that journal.

The Committee has agreed to the recommendation of the Finance Committee that, except under exceptional circumstances, the number of pages of the *Record* should not exceed thirty-two.

It will have been noted that, in order to facilitate the indexing of the *Record*, the plan has been adopted of printing upon each literary page the volume and number of the *Record* in addition to the date of issue.

Arrangements have been made with the Colonial Office for the regular supply of information relating to Appointments, Leave Movements, etc., of veterinary officers in the Colonial service.

It has been decided to procure copies of the Lists of Publications issued by H.M. Stationery Office with a view to publication in the *Record* of such items therein as concern members of the profession.

Towards the end of the quarter a big effort was made to increase the number of advertisements, and it is hoped that good results will be forthcoming.

Professor BUXTON seconded, and the motion was carried without discussion.

FINANCE COMMITTEE. Mr. MCINTOSH, the Chairman, read the following report of this Committee:—

This Committee has met once since the date of the last quarterly meeting of Council.

Authority was given to the Treasurer to pay the liabilities shown in his Financial Statement.

It was decided that in future efforts should be made to keep *The Veterinary Record* down to within the limit of 32 pages, and that only under exceptional circumstances should this number of pages be exceeded.

The usual grant of £10 was made to the Victoria Veterinary Benevolent Fund.

The Secretary was instructed to point out to a member who had written stating that he does not propose to continue his membership or subscription and requesting that the account standing in his name be wiped out, that as the subscriptions due from him were for membership and not for the purchase of *The Veterinary Record*, which is supplied free as one of the privileges of membership, the Committee have no alternative but to press for payment of the amount in question.

Proceeding, Mr. McIntosh said that, before moving the reception and adoption of the report, he would like, with the permission of the President, to ask the Treasurer to make a statement, with particular reference to paragraph 5 of the report.

Mr. E. ALFRED WEST (Hon. Treasurer) submitted a financial statement for the month of September, and proceeded:—

The following liabilities are for your approval and await your instructions for payment:—

Printing *The Veterinary Record*, September, nett	£208	11	4
Rent of Gray's Inn Chambers, Michaelmas Quarter	17	0	0
Hudson and Sons' Postage Account, Petty	29	9	7

You will please note that this period includes one of heavy costs contracted as a result of the Congress, its attendant expenses, and the Congress book. In the desire to improve, popularise, and make *The Veterinary Record* a journal in every way representative and worthy of the profession, the Editorial Committee have found it necessary, on numerous occasions, to enlarge the size of the paper from 32 to 36 pages. It will interest you to know that such increase, if maintained throughout the year, would cost the Association an additional £340. With our present revenue, satisfactory though it be, it is questionable whether we can, and personally I am of opinion we cannot, even in spite of the increase of the advertisements, afford to continue printing so large a paper. I say this with a full knowledge of the necessity and desirability of carrying out the admirable aims of the Editorial Committee above referred to. All of us must, however, agree that it is essential to maintain our commercial equilibrium and avoid contracting debts which the revenue will not comfortably and evenly meet.

In an Association like ours it does not seem to me to be prudent to risk having to encroach upon investments and reserves. This, however, is a matter which the Council as a whole must decide, and I can only ask you to give attention and thought to the

remarks to which you have just been good enough to listen.

It was agreed that the Treasurer be authorised to pay the liabilities shown in his financial statement.

Mr. McINTOSH, proceeding, said: I was most anxious that our Treasurer should make a statement to the meeting because there has been a feeling, amongst a few of our members at any rate, that the subscription to the Association should be reduced. You will, I am sure, agree, from what Mr. West has told you, that it is quite impossible for us to contemplate any reduction in the membership subscription at the present time. It is very desirable that we keep well within limits in order to create some substantial reserve if we are to perform the functions of the Association to the best advantage. I have now much pleasure in formally moving the acceptance and adoption of the report.

Major DUNKIN seconded the motion.

The PRESIDENT having invited discussion of the report,

Captain KIRK said that he had heard no reference in the report to the question of the Association giving its financial support to the fund inaugurated by the Central Division for the provision of an X-ray apparatus to be installed at the Royal Veterinary College, London.

The SECRETARY informed Captain Kirk that the matter had been considered by the Finance Committee, who would again have the subject before them at their next meeting.

Mr. GOFTON: I do not know that I heard aright the statement made by Mr. West, but I understood him to say that an expense of £28 had been incurred in connection with the Stationery Department. I assume, in view of the recommendations made to obtain notices from the Stationery Department, that I am right. It seems an extraordinary sum of money to spend on that type of publication.

The PRESIDENT: The item you have in mind costs us nothing.

Mr. WEST: It is in respect of the cost of reprints, and represents disbursements which we are repaid.

The report was received and adopted.

ORGANISING COMMITTEE. In the absence of the Chairman of this Committee, Dr. Bradley (who had to leave early), the SECRETARY read the following report of this Committee:—

Dr. O. Charnock Bradley presided over a meeting of this Committee which was held in this room this morning.

Arising out of a letter from Captain Hamilton Kirk regarding the dissemination of propaganda in the interests of the profession, it was resolved that the officials of the Association, with Captain Kirk, should confer with Mr. Croxton Smith with a view to ascertaining the possibilities of securing the inclusion of articles in the lay press, the subject matter to include the proceedings at the Annual Congress of the Association.

It was agreed that, upon the publication in the *Record* of an article promised by Mr. F. T. Harvey on the subject of the importance of note-taking in practice, the notice of the secretaries of the students' organisations in the respective Colleges should be drawn specifically to it, and that the suggestion should be made to them that, through the agency of their organisation, the attention of students should be drawn to the Clinical Prize Scheme.

Copies of correspondence that had passed between Lieut.-Colonel Rainey and Mrs. M. E. Dickin, the Hon. Director of the People's Dispensary for Sick Animals of the Poor, were read and considered, together with other communications relative thereto. The opinion of the Solicitor was given, and after considerable discussion it was resolved "That this Committee recommends to the Council that no action be taken at the moment on the matter which is before them."

The question of the re-grouping of Divisions was before the meeting. It was decided to defer further consideration of this matter.

The Secretary was instructed to write to unaffiliated Colonial Associations with the suggestion that they should follow the example of the Veterinary Medical Association of Kenya Colony and Protectorate and become affiliated to the N.V.M.A.

The PRESIDENT: In the absence of Dr. Bradley, I propose the reception and adoption of this report.

Mr. REES seconded.

There being no discussion, the report was received and adopted.

PARLIAMENTARY COMMITTEE. The following report of this Committee was read by Professor BUXTON (Chairman), who moved its reception and adoption:—

This Committee met this morning, with Dr. Bradley in the chair.

A letter was submitted from Captain W. Hay, M.R.C.V.S., of Kimberley, South Africa, in reference to the Veterinary Bill which is being introduced by a private member before the Parliament of the South African Union, the aim and purpose of the Bill being to establish the veterinary profession in a sound and legal position now that the Government is maintaining an Institution, part of whose function is to educate students for the necessary qualifying degree of the University of South Africa. An additional object of the Bill is to prevent the entry of undesired persons into this institution.

Captain Hay's complaint was that the passage of the Bill would result in the profession becoming largely Dutch in character, and that an M.R.C.V.S. would be restricted to taking posts with Municipal authorities, sugar companies, etc., owing to the proviso that no incoming veterinary surgeon may practise privately in the country unless he is a South African graduate.

It was decided that this was a matter upon which the Association could not take action.

A letter from a firm of Parliamentary and Publicity Consultants offering their services to the Association was considered and it was agreed to inform this firm that the Association was already adequately served in this respect.

Colonel SIMPSON seconded the motion for the acceptance and adoption of the report. This was carried without discussion.

VETERINARY INSPECTORS' AND PUBLIC HEALTH COMMITTEE. The SECRETARY, in the absence of the Chairman of this Committee (Mr. G. P. Male), read the report of this Committee as follows:—

One meeting of this Committee has been held since the last quarterly meeting of Council.

The attention of the Committee having been drawn to a cutting taken from *The Meat Trades' Journal*, of August 19th, giving fees fixed by the Cheshire County Council for tuberculin testing and stating that "previous sanction to the employment of such tests must be obtained from the County Medical Officer of Health," the Secretary was instructed to write to the Secretary of the Lancashire Division requesting him to institute local enquiries concerning the accuracy of the information contained in the cutting in question.

Milk and Dairies (Consolidation) Act, 1915. The Committee decided to defer re-consideration of the Scale of Fees adopted for the Milk and Dairies (Consolidation) Act, 1915, until it is definitely known what work has to be carried out in connection with the Milk and Dairies Order, 1926.

Resolution from the North of England Division and additional recommendation of Council. The Committee have considered the following resolution from the North of England Division:—

"That the N.V.M.A. should approach the National Farmers' Union and the Dairy Farmers' Association on the subject of the control of cows re-acting to the tuberculin test.

"Further, that all milch cows exposed for sale at any mart, fair or sale, should carry with them a veterinary certificate to the effect that the animal so exposed had passed the tuberculin test within fourteen days of exposure."

Together with the additional recommendation of the Council:—

"That the sale of milch cows carrying with them the veterinary certificate referred to therein should take place on certain specified days."

They recommend to the Council that the resolution and additional recommendation be submitted to each Division of the Association for discussion and report, and also that their opinions should be asked as to the best method of controlling the sale of cows reacting to the tuberculin test.

The following letter, which had been received from Mr. MALE, was read:—

Veterinary Infirmaries,
50 Friar Street, Reading,
Tuesday, October 5th, 1926.

Dear Mr. President,

VETERINARY INSPECTORS' AND PUBLIC HEALTH COMMITTEE'S REPORT.

I much regret that I am unable to be present to read the report of the Committee, but might I just add, with reference to the resolution from the North of England Division, that, after careful consideration, the Committee thought that in view of the differences of opinion expressed and the far-reaching nature of the proposals, it was a matter that should be discussed by all veterinary surgeons interested, so that some well-considered plan could be proposed to the National Farmers' Union and the British Dairy Farmers' Association.

I would suggest that when the matter is discussed by the Divisions, local representatives of the National Farmers' Union might be invited to the meetings, so that their opinions might also be obtained. This would thoroughly ventilate the subject and might bring about the result desired by the North of England Veterinary Medical Association.

With regard to the fees to be charged under the Milk and Dairies Act, it has come to my knowledge since the meeting that some local authorities have made appointments for periodical and routine inspections of cows three and four times a year. Those members in doubt as to fees to be charged might take those fees agreed upon by the Council as a basis. If, however, an investigation is to be carried out under the Milk and Dairies Act and the Tuberculosis Order to ascertain what cow or cows are giving tubercle bacilli in the milk, then the fees which have been agreed to by very many local authorities under the Tuberculosis Order should apply.—Yours sincerely,

GEO. P. MALE.

The PRESIDENT: In the absence of Mr. Male, I beg to move the acceptance and adoption of the report.

Professor BUXTON seconded.

Mr. GOFTON: I should like to ask, in the event of the Divisions approving of action being taken on the lines of this resolution from the North of England Veterinary Medical Association, what form of policy do you propose to submit to the National Farmers' Union and the Dairy Farmers' Association in regard to the first part of the motion—"That the N.V.M.A. should approach the National Farmers' Union and the Dairy Farmers' Association on the subject of the control of cows re-acting to the Tuberculin Test"? It does seem to me that before you get an instruction from the Divisions to take action you ought to have decided some policy on which to proceed.

The PRESIDENT: It was in order to formulate some policy that it was determined to obtain the views of the Divisions.

Mr. GOFTON: I think we should be more clear on the matter. The resolution is far too vague for any action to arise.

The PRESIDENT: Would you suggest that we refer it back to the Inspectors' Committee, so that they can elaborate and give some kind of lead?

Mr. GOFTON: I think it would be much better if we could frame some sort of policy for the guidance of the Divisions—they can amplify it if they think fit. I would be prepared to move that we refer it back to the Committee for further consideration.

Mr. MCINTOSH: I feel very strongly that in approaching the National Farmers' Union we cannot be too sure of our ground.

(*To be continued*).

R.C.V.S. OBITUARY.

RIVETT, Ernest, Danetree, Margaret Street, Toowoomba, Queensland, Australia. Graduated, London, 16th December, 1875. Died 19th April, 1926.

SEED, Samuel, 30 Victoria Avenue, Keighley, Yorks. Graduated, Edinburgh, January 15th, 1880. (H. and A. 1875). Died 11th October, 1926.

BRANCH REPORT.

Scottish Branch.*

MEETING AT PERTH.

A meeting of the Scottish Branch was held in the Station Hotel, Perth, on Saturday, 25th September, 1926, under the Presidency of Mr. H. W. Robson, M.R.C.V.S., of Laurencekirk.

The meeting was preceded by luncheon in the drawing-room of the hotel, at the conclusion of which the Loyal Toast was given by the President, and duly honoured.

The President took the Chair at 2 p.m., and the following gentlemen signed the attendance book:

Members.—Messrs. Wm. Anderson, Pittenweem; Hugh Begg, Lanark; Jas. Bishop, Perth; Geo. F. Boddie, Auchterarder; Duncan Cumming, Peterculter; W. M. Ferguson, Dundee; Professor D. Imrie, Glasgow; Messrs. T. M. Inglis, Forfar; W. M. Jackson, Hamilton; Jas. Macfarlane, Glasgow; John Macfarlane, Doune; J. MacGregor, Stirling; Professor W. M. Mitchell, Edinburgh; Messrs. W. A. Pool, Edinburgh; Robert Reid, Cupar-Fife; A. Linton Robertson, Arbroath; G. W. Weir, Glasgow; P. Wilson, Lanark; and the *Interim* Honorary Secretary, Mr. Wm. C. Miller, Edinburgh.

Visitors.—Messrs. John Brown, Perth; Adam Gibson, Newton-Stewart; George Howie, Aberdeen; R. S. Marshall, Stirling; J. Neish Ritchie, Edinburgh; W. J. B. Robson, Laurencekirk; Dr. A. Leslie Sheather, London; Messrs. A. McK. Sievewright, Tarland, and H. M. Wilson, Cupar-Fife.

The minutes of the previous meeting, having been printed in the *Veterinary Record*, were taken as read.

The *Interim* Hon. Secretary read apologies for absence from the following gentlemen: Dr. Bradley, President of the Scottish Metropolitan Division; Mr. James Waddell, President of the Dumfries and Galloway Division; Dr. A. Whitehouse, President of the West of Scotland Division; Messrs. Lewis, Campbelltown; Neil H. MacAlister, Kirkcudbright; W. Wallace Peggie, Biggar; and Mr. Wm. Brown, of Aberdeen, who was confined to bed and tendered his sincere apologies for not being present to present his paper entitled: "Some Observations Upon Alimentary Diseases of Cattle."

CORRESPONDENCE: (1) From the Secretary of the National Veterinary Medical Association relative to the advisability of keeping the various Branches of the "National" active. No action was necessary with regard to this letter, since the Scottish Branch is fully alive and functional.

(2) From the Secretary of the South-East of Scotland District Committee of the National Master Farriers' and Blacksmiths' Association, asking for the support of the Scottish Branch for a "Scheme for the Registration of Farriers," as follows:—

In accordance with the recommendations made in the Whitley Report, the Interim Reconstruction Committee which had been formed in the Farriers' and Blacksmiths' trade (consisting of Representatives of the National Master Farriers' and Blacksmiths' Association, the Irish Master Farriers' Association, and the Amalgamated Society of Farriers), hereby memorialise His Majesty's Government on the subject of the better training and registration of Farriers.

WHEREAS during the past century—while almost every trade and industry has been advancing in improved and scientific methods of carrying on its operations—the Farriery trade has been practically at a standstill; and, although efforts have been made by the Worshipful Company of Farriers of London, the Royal Agricultural Society of England and a few other bodies, to establish a more scientific method of horse shoeing, yet amongst the great body of the trade there has been no improvement; and

WHEREAS it is expedient in the National interests that horses should be shod in a scientific manner, because many thousands of horses are so injured by wrong methods of shoeing every year that their working lives are very materially shortened, it is deemed necessary that Farriers (or Shoeing Smiths) should receive technical instruction in the Structure of the Horse's Foot and the Scientific Principles of Shoeing, and

WHEREAS there is at present no organised method or means of obtaining this instruction and training, it is the desire of the said Reconstruction Committee that His Majesty's Government forthwith introduce a Bill making it compulsory that Farriers (or Shoeing Smiths) shall undergo a course of training and fit themselves to pass an examination, before being allowed to practise the Craft, and

WHEREAS the shoeing of a horse—besides requiring great mechanical skill in the making, fitting and nailing of the shoes—is a surgical operation performed on a living structure, and

WHEREAS such legislation has been passed in several of the British Colonies and in some of the countries on the Continent of Europe, for the purpose of ameliorating the lot of horses and prolonging their working lives, the Farriers' and Blacksmiths' Reconstruction Committee make the following suggestions for the framing of an Act of Parliament for the Compulsory Examination and Registration of Farriers (or Shoeing Smiths):—

1. **That the said Act shall be framed on the lines of the Veterinary Surgeons' Act, 1881, and the Veterinary Surgeons' Amendment Act, 1900.**
2. **That the Worshipful Company of Farriers of London (a Livery Company of the City of London Guilds, established in 1356, and Incorporated by Charter) shall be the Examination and Registration Authority for Great Britain and Ireland.**
3. **That the Registration Council shall contain amongst its members an equal number of Members of the Royal College of Veterinary Surgeons, Members of the National Master Farriers' and Blacksmiths' Association, and Members of the Amalgamated Society of Farriers, each and all of whom shall also be Registered Farriers by examination of the said Worshipful Company of Farriers.**
4. **That after the passing of this Act no person shall be licensed to practise Farriery or engage in business**

* Received on October 9th, 1926.

as a Farrier (or Shoeing Smith) unless he shall be a Member of the Royal College of Veterinary Surgeons, or shall have served an apprenticeship of at least five years and shall pass such examination—theoretically and practically—in the Structure of the Horse's Foot and the Principles of Shoeing, as may be fixed from time to time by the Registration Council.

5.—That any person (not being a member of the Royal College of Veterinary Surgeons) over 30 years of age at the passing of the Act, who has continuously practised Farriery for not less than ten years, but is not on the Register of Farriers, shall be entitled within three months of the passing of the Act to be placed on a separate Register under the heading of "Existing Practitioners," without examination, but shall not be deemed to be a licentiate of the Worshipful Company of Farriers.

6.—That after the passing of the Act, no person who is not licensed or registered by the Worshipful Company of Farriers shall use any name, title, addition or description by means of initials or letters placed after his name, or otherwise stating or implying that he is licensed or registered by the Worshipful Company of Farriers, or that he is a person specially qualified to practise as a Farrier or Shoeing Smith. (Under a penalty).

7.—That it shall be incumbent upon all Technical Education Authorities throughout Great Britain and Ireland to supply facilities and Instructors for the giving of lectures and demonstrations in the art of Farriery at fair and reasonable fees.

8.—That the said Instructors, before being appointed, shall pass a special examination by the Board of Examiners of the Worshipful Company of Farriers.

9.—That similar provisions, penalties, etc., as are included in the Veterinary Surgeons' Act, 1881, 44 and 45 Vict., Chapter 62, shall also be embodied in the Farriers' (or Shoeing Smiths') Act in so far as they are applicable, that is to say:—Clauses 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 17, 18, and 19, and Clause 3 of the Veterinary Surgeons' Amendment Act, 1900.

D. CARSON.

After some discussion by Messrs. H. Begg, G. Weir, D. Cumming, J. MacGregor, A. L. Robertson, W. M. Ferguson, and Wm. C. Miller, a motion that "The Secretary be instructed to write to the Secretary of the National Master Farriers' and Blacksmiths' Association to say that the Scottish Branch is in sympathy with the Scheme, but that before giving any support desires further information," was proposed by Mr. Weir, seconded by Mr. McGregor, and agreed to by the meeting.

Election of Office-Bearers.

The retiring President, Mr. H. W. Robson, desired to say, before vacating the Chair, that the honour the Branch had conferred upon him by electing him President for the past session was one which he appreciated very highly. He had been happy to occupy the Presidentship of the Scottish Branch, for he felt that it was a part of each one's duty to take some share in the organisation of the "National" or its Branches or Divisions. He wished there could have been a better attendance, but everyone knew how difficult it was to get away from a busy practice, and he hoped there would be bigger attendances in future.

He wished to thank the Branch for having elected him to the Presidency, and on retiring he wished to nominate Mr. Neil H. MacAlister of Kirkcudbright, an ex-President of the Dumfries and Galloway Division, as his successor in office for the year 1926-27.

Mr. Weir seconded, and stated that he could assure the Branch that if they secured Mr. MacAlister they would have a most efficient and capable President. Mr. H. Begg pointed out that it was a departure from custom to elect anyone other than the President of a Division to be President of the Branch, but the Secretary explained that the President of the Dumfries and Galloway Division had intimated that he regretted that he was unable to allow his name to go forward for the office. There being no other nominations, Mr. MacAlister was elected President (*in absentia*). Mr. Robson continued to occupy the Chair.

For the office of Secretary, in succession to Mr. J. Howard Jones, who left Scotland in February to take up a position in Wales, Mr. Wm. C. Miller was proposed by Mr. Robson. Mr. Miller indicated that he would prefer to withdraw in favour of someone who was better known to the Scottish practitioners. Mr. Inglis of Forfar, and Mr. Wilson of Lanark supported Mr. Robson's proposal, and Mr. Miller was elected. He briefly thanked the members present.

Mr. Robson than introduced Dr. A. Leslie Sheather, Assistant Director, Animal Diseases Research Institute, Camden Town, London, who had, at great personal inconvenience, travelled up from London to present the scheduled paper—the result of his original research into that scourge of breeding cattle—Bovine Contagious Abortion.

[Dr. Sheather's paper, together with the discussion upon it, and the reply, receive separate publication in this issue.—Ed.].

Mr. Begg moved a vote of thanks to Dr. Sheather for his great kindness in preparing such an elaborate and extensive paper. Dr. Sheather, he said, ranked among the first of bacteriologists in Great Britain, and they were very greatly indebted to him for coming there at so much personal inconvenience.

Mr. Weir seconded, and the vote was cordially passed.

In the absence of Mr. Wm. Brown, of Aberdeen University, who was indisposed, Mr. W. A. Pool, Director of the Animal Diseases Research Association, Moredun, Liberton, nr. Edinburgh, kindly consented to address the meeting on

The Work of The Moredun Laboratory.

Mr. Pool said the Board of Agriculture for Scotland gave a capital sum down two or three years ago for the erection and equipment of new buildings for the Association's laboratories. They began working in accommodation rented from the Glasgow Veterinary College, but on 1st June this year they moved into

their new buildings near Liberton. In addition to the Institute, they had the top flat of the Royal (Dick) Veterinary College, which was being equipped for them. They had only just succeeded in getting the equipment together for the Institute, and they were now getting on with the laboratories, which were separate from the Bacteriological Department of the College. For the work of the Institute they had obtained £19,000, but it was not too large a sum. They had a Pathological Laboratory for the investigation of the diseases of animals, and the great need was for more workers. Their staff consisted of only three, and they had a good many problems in front of them. They were committed to some problems of animal disease which would be undoubtedly lengthy, and sheep diseases had up to now been the main line of their work. If they could get a bigger staff together they hoped to be able to add to the scope of their activities, but with the present staff they were more or less limited to the work already in hand. They had recently been given £1,000 for the purpose of a motor laboratory, and he believed that would be a great help to them, as it would enable them to carry out investigations on the spot at the right time. They were investigating the causes of sheep diseases—scrapie, lamb dysentery, louping-ill, and, to a certain extent, braxy. As far as he could see, these problems were going to keep them busy for a year or two, or possibly more. In the case of scrapie, it meant undoubtedly a very long investigation. In the case of lamb dysentery, so far as the results went, they could not claim that they had produced any method of controlling the disease as yet, but there was no knowing what the next year or two might bring about. They had been interested in abortion, but they had not had time to make that one of their large lines of investigation, although they had been issuing the live vaccine on a moderate scale, and as far as he could make out the results seemed to be quite good. They had done a little work in connection with mammitis, but there was a great deal more to be done on the pathology of the disease. Grass disease was, of course, one of the items which had always been a big item in their programme. He did not think they had any grounds for forming any concrete opinion as to the cause of the disease. Mr. Pool expressed the hope that members of the Scottish Branch would pay a visit to the Institute and give them helpful advice.

Professor MITCHELL, in moving a vote of thanks to Mr. Pool, said that there was not the slightest doubt that the staff of three at the Institute would before long be greatly augmented, because the problems were many, and the work was more than three men could possibly do.

The vote of thanks was heartily carried.

After some discussion, it was decided that the next meeting of the Branch be held in September, 1927, and that it be left to the office-bearers to make the necessary arrangements for holding the meeting in Gleneagles Hotel, it if were at all possible. It was urged, in support of this motion, that railway facilities were better, that Gleneagles was more easily reached from distant parts of Scotland than Perth, that advantage could be taken of the cheap daily ticket, and that luncheon and meeting-room accommodation would be as convenient as at Perth.

It was further decided that at subsequent meetings of the Branch all papers to be presented should be printed and circulated to the members before the meeting, so that not only would there be more opportunity to appreciate the addresses, but the discussion would be better balanced, more reasoned, more exhaustive, and would do more justice both to the essayist and his paper, than is at present the case. The Secretary undertook to get future papers printed and circulated before the meetings.

A vote of thanks to Mr. H. W. Robson, for his chairmanship of the meeting, moved by Mr. Inglis of Forfar, and carried unanimously, terminated the proceedings.

WM. C. MILLER,
Hon. Secretary.

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Oct. 26th.	Meeting of the North Wales Division, at Chester.
Oct. 26th.	Meeting of the Dumfries and Galloway Division, at Annan.
Oct. 29th.	Meeting of the Yorkshire Division at Leeds.
Nov. 3rd.	Annual Meeting of the Scottish Metropolitan Division, at Edinburgh.
Nov. 4th.	Annual Dinner of the Central Division at the Trocadero, London.
Nov. 30th.	Changes in address for Register to be notified to Registrar. Examination fees payable.
Dec. 7th.	Membership Examinations (written).
Dec. 9th.	Membership Examinations (oral).

PHARMACISTS AND "RISKS OF VETERINARY BUSINESS."

The Retail Pharmacists' Union *Supplement* of September, contained the following illuminating note :

"We have published warnings regarding the risk incurred by giving medicines to toy dogs of any breed. Previously we have reported upon strychnine and areca nut, we now find that ol. chenopodium and santonin are not suitable for these small dogs, and recommend our members to avoid prescribing them.

"Members should bear in mind that when prescribing for an animal they are incurring liability to a claim for damages if the animal dies under the treatment, although its death may not be directly attributable to the medicine prescribed.

"The fact that claims made upon members of the R.P.U. amounting to over £200 are under consideration at the present time is sufficient indication of the risks attendant upon veterinary business."

Animal Breeding.

Lord Woolavington's Gift.

"It was announced yesterday," says *The Daily Telegraph* of October 15th, "that Lord Woolavington had intimated a gift of £10,000 towards establishing a Chair of Animal Breeding at Edinburgh University. Sir Alfred Ewing, the Vice-Chancellor, said the International Education Board had offered £30,000 on certain conditions towards the development of the department, and these conditions had been fulfilled by Lord Woolavington's gift. The Vice-Chancellor added that between £60,000 and £70,000 would be required for the adequate endowment of the department."

A "Cowkeeper" Opinion.

"The Hereford Rural District Council," says *The Local Government Journal* of October 16th, "have been in correspondence with the Ministry of Health in regard to questions arising under the Milk and Dairies Order, 1926. The Ministry were asked whether in their opinion persons who keep one or more cows for the supply of milk for their own household, and sell their surplus milk to their neighbours, are carrying on the trade of cowkeepers, in which case it would be necessary for them to register, and have their dairies open to inspection.

"In a letter sent to Mr. John Moore, Solicitor, Clerk to the Hereford Rural District Council, the Ministry replied that the question was one of fact to be determined from the circumstances of the individual case. The Ministry had, of course, no jurisdiction to give a decision on such a point, but it seemed to the Minister that in ordinary cases where a person kept a number of cows not exceeding the number required for his own household, and sold any milk, butter, etc., which might from time to time be produced surplus to those requirements, he might properly be regarded as not carrying on the trade of dairyman, and therefore as not being subject to registration under the Order."

Colonial Appointments.

Included in the appointments made by the Secretary of State for the Colonies during the month ended 10th October, 1926, are the following:—Mr. J. R. Hudson, B.Sc., M.R.C.V.S., Veterinary Officer, Kenya. Lieut. N. Clarke, M.R.C.V.S., Veterinary Officer, Nigeria.

The licence of the Ministry of Agriculture and Fisheries is required for the relanding of dogs taken out of the United Kingdom on board H.M. ships, states a Fleet order. The terms of the licence provide for six months' quarantine on approved veterinary premises. The provisions of the order apply to any dog taken from the United Kingdom into any port in any other country, as if the animal were an imported dog, and also to any dog which has at any time before or after arrival at a port in Great Britain been in contact with any imported dog.

Erratum.—In Mr. W. A. Campbell's letter on "An Atypical Case of Anthrax," published in last week's *Record*, the sentence in lines 4 and 5 of paragraph 4, on page 952 should read: "He died three days after and the case was free (clear) from anthrax."

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

Milk from the Cow's point of view.

To the Editor of The Veterinary Record.

Sir,—I am grateful to Mr. Forbes for his criticism of the paper on milk which I read before the Sanitary Inspectors' Association.

The title, I admit, sounds rather novel, and was suggested more or less as a joke by my faithful henchman, our Sanitary Inspector, who was a tremendous enthusiast for pure milk and whom, alas, we now mourn.

The chief object of the paper was to draw the attention of Health Officers of various grades to the deplorable conditions under which milk is produced in this and neighbouring counties.

I have repeatedly impressed upon them the danger of contamination from the filthy milkers and their crude handling of milk.

The cutting, which apparently was taken from the Sanitary Inspectors' Journal, is, of course, only an extract. Incidentally, I would mention that the latter includes a quotation from Sir Frederick Smith's *Veterinary Hygiene* without acknowledgment—whereas he is duly credited in my paper.

Mr. Forbes' letter contains a welcome spice of humour, which is all too lacking in our professional journalism to-day. I thank him again.—Yours faithfully, L. W. Wynn Lloyd, F.R.C.V.S.

Wynston, Carnarvon,
12*th October*, 1926.

The Editor acknowledges the receipt of the following:
Communication from Major H. C. Stewart.
Report of a meeting of the Eastern Counties Division from Mr. W. Shipley, Hon. Secretary.
Report of a meeting of the North of Scotland Division, from Mr. G. Howie, Hon. Secretary.

National Veterinary Medical Association of Great Britain and Ireland.

EDITORIAL OFFICE: 10 Gray's Inn Square, London W.C.1.

All communications relative to the literary side of the Veterinary Record must be addressed to the Assistant Editor, "Veterinary Record," 10 Gray's Inn Square, W.C.1